the former may occasionally be heard in expiration. We cannot pass from this notice of the crepitant râle, without referring to the explanation of it given in this Journal twenty years ago by the late Dr. E. A. Carr, of Canandaigua, N. Y. The reader will find the article in the No. for October, 1842. It has never been cordially received by our own countrymen, and appears to be little known on the other side of the Atlantic. We do not doubt that it is the correct view of the mechanism of this sign, and that it will ultimately be generally accepted as such. It is perfectly consistent with the distinctive characters of the sign, viz., the dryness and limitation to the inspiration; and this cannot be said of the usually received theory which attributes the sound to bubbling in the vesicles and capillary tubes. Dr. Carr has recently died. We wish he could have had the gratification of seeing his explanation adopted by the profession.

A single point with regard to the moist bronchial râles (mucous and subcrepitant). In pitch they correspond with the respiratory sound in the portion of lung whence they emanate. In other words, if they are associated with the bronchial respiration, they are high in pitch; they are less high in pitch if associated with broncho-vesicular respiration, and they are low-pitched if the respiratory murmur be unchanged. We may, therefore, infer from the pitch of these râles, what the respiratory sound would be in cases in which the râles are alone heard. This is a point sometimes of practical value in diagnosis.

ART. II.—*Some Remarks on Neuroma, with a brief Account of Three Cases of Anomalous Cutaneous Tumours in One Family.* By ALFRED HITCHCOCK, M. D., of Fitchburg, Mass.

THE term Neuroma, according to Dr. Smith, was first introduced by M. Odier, of Geneva, in 1803, and has since become established in medical nomenclature to designate a *tumour connected with a nerve.* The ancients described the disease somewhat obscurely under the names of *ganglions, nodes,* and other less specific terms. Some modern writers have either confounded it, or made it identical with *painful subcutaneous tubercle.* Continental pathologists have, in modern times, carefully studied the disease, and the results of their observations are condensed in the valuable work of Dr. Robert W. Smith, of Dublin, which was published about ten years ago. To that work I am indebted for many of the facts pertaining to the disease contained in this paper.

Neuromatous tumours are of spontaneous origin, the consequence of morbid process, or the result of wounds or injuries. If they are idiopathic, and but one tumour exists, it is usually painful; but if many tumours exist,

they are usnally free from pain. The traumatic varieties of neuroma, whether single or many, are usually very painful. The tumours in the constitutional variety, which is to be considered in this paper, are usually oblong in shape, sometimes globnlar, and slightly pedunculated, and may vary in size from that of a millet-seed to that of an ostrich egg. They more usually exist upon the spinal nerves, but occasionally in the ganglionic system. The writer witnessed a dissection of the latter class, at La Charité, Paris, in 1852. In this case there was a mnltitude of tumours ou the sympathetic nerve, from the size of a pea to that of an English walnut. The spinal nerves in the pelvis were also involved in the disease. The cutaneous nerves, I think, were entirely free from diseasc. A published report of this interesting case has not been found.

In general, the tumours are *solid*, with an *elastic feel*, and sometimes are said to be composed of a cyst filled with fluid. They are of very slow growth, and are slightly movable, especially laterally. Those formed on minute cntaneous nerves will disappear in the areolar tissue by firm pressnre. The skin is not discolored over them, neither does it adhere to them, unless friction, or pressure, or other cause, has interfered with their natural development. Inflammation, suppuration, or absorption, seldom occurs in them. The true neuroma is generally regarded by pathologists as a disease of a *benign character*. Some, however, regard neuromatous tumours as cancerous; and it is unquestionably true that malignaut tumours are occasionally found involving trunks of nerves. Several continental pathologists maintain that neuroma is a malignant disease; while Dr. Smith, in his valuable memoir, presents very strong reasons for its benign character. This question can hardly be said yet to be finally settled—certainly not more satisfactorily settled than with a pretty large variety of tumours, that are developed in other tissnes of the body. The truth on this subject may yet be found in a solution of the question whether or not benign tumours ever degenerate into malignant. Mr. Abernethy, as is well known, favoured the doctrine of such transformation. Professors Gluge, of Germany, and Syme, of Edinburgh, at present maintain the doctrine of the malignant degeneration of certain recurrent tumours. Mr. Paget also coincides in this view, and very aptly remarks that "recurring fibroid tumours assume more and more malignant features the oftener they recur." And he also adds: "Whatever be the truth concerning the supposed transformation of an innocent into a malignant, morbid growth, I think it can hardly be doubted that, in the case of some recurring growths, the successively later growths acquire more and more of the character of thoroughly malignant disease." He also expresses (p. 394) considerable doubt whether the so-called painful subcutaneous tubercle "is identical with the fibro-cellular neuroma or not." According to Rokitansky (vol. iii. p. 347), neuroma should be ranked with the fibroid structures. He describes it as non-malignant, and says, "that with the exception of cancer, neuroma is the most frequent adventitious

growth which occurs in the peripheral nervous system. In quantity, they may exist from one to countless numbers. In the latter case it constitutes a very *general disease*, as to the cause of which we are *still in the dark*. The size of the tumours bears no direct proportion to the thickness of the nerve on which it is formed; for, in point of fact, it has been noticed that those tumours which are situated on small branches, are relatively much larger than those which occupy the thick trunk of a nerve." He also says (vol. i. p. 213), "Medullary carcinoma has some sort of affinity to the medulla of the nervous system; this is evinced by the fact that in the eye-ball this disease always springs from the retina or optic nerve, and nerves speedily perish in the range of medullary tumours."

Several writers have observed mental imbecility, idiocy, or cretinism, in persons afflicted with neuroma as a general disease. In the three cases of anomalous cutaneous tumours, in the Clark family, described in this paper, although a tolerable degree of intelligence existed, and a desire to act strictly conscientious, yet there is a very obvious imbecility and vacillation of the mental and moral powers. The expression of their countenances strongly corroborates this opinion, and justly conveys the impression that they are persons of weak intellect.

CASE 1. *May 4th*, 1860. Mrs. Elizabeth Clark, wife of Peter Clark, deceased, was the daughter of Samuel and Abigail Brown, of Worcester, Massachusetts, where she was born, Oct. 3, 1779. Her parents "kept tavern," and in June preceding her birth, the weather being very hot, according to family tradition, her mother "melted herself." From this time she was sick, and kept her bed till the birth of Elizabeth. She was a tolerably healthy child, was occasionally troubled with a "rash," till thirty years of age, when the tumours in the skin began to appear. They have gradually increased in number, and some of them very slowly in size; have never been painful, except from injury, and they have always retained the colour of the skin. In shape they are variously *oval, globular*, slightly *pedunculated*, or *merely* papular, oval *disks*. Some are hard like scirrhus, some have a firm, elastic feel, and some are soft, and readily disappear by pressure under the skin. None have the appearance of melanosis.

At this time the tumours cover the whole body—are most abundant on face, neck, thorax, and arms. In size they vary from that of a pin's head to that of a hickory-nut. They number many hundreds, too many, in fact, to think of counting them. The tumours in her case, as well as in the daughter and son, have multiplied pretty steadily with advancing age.

The writer has procured photographs of all these cases for preservation.

Mrs. Clark is now nearly 81 years of age, is tolerably well, and her usual mental power is quite unimpaired. She gives the foregoing facts concerning her own history, and also states that her parents were healthy, without tumours, or *cancers*, or eruptions of any kind; and that none

existed among their relatives, or among her own brothers or sisters, there being ten children in the family.

Mrs. Clark had seven children. Several of them died early of acute diseases. Only two of the children, Samuel B. and Elizabeth D., exhibited the cutaneous tumours like the mother. Her husband died many years ago of acute disease. He had brothers and cousins who died of cancer.

CASE 2. In the case of the daughter, Elizabeth D. Clark, aged 54, the tumours began to appear at 10 years of age. One, near the clavicle, attained the size of a hen's egg, and was removed, when she was 21, by Dr. Torrey, of Windsor, Vermont. Another small tumour, on the lip, was removed, a few years ago, by the family physician, Dr. W. H. Bigelow, of Bolton. Neither of these tumours have ever returned, although she thinks the tumours in other parts of the body increased in number more rapidly after their removal.

CASE 3. Samuel B. Clark, aged 46; single; factory operative, Bolton, Mass. About the first of June, 1856, consulted me for a painful tumour of the right arm. He was thin in flesh, pale, seemed timid, dejected, and almost childish when conversed with about himself. The history of the tumour he related as follows: About twenty-two or twenty-three years ago, he discovered a small, movable tumour on the right arm, just above the internal condyle of the humerus. This increased very slowly for twenty years, and did not interfere with the motions of the arm; was not sensitive or painful, unless compressed, or the arm used violently, when numbness, or pricking sensations, or acute pain, would extend to the fingers. About two years ago, the tumour began to increase in size much more rapidly, and the pain and discomfort were correspondingly increased. For nearly a year past he has been unable to labour, in consequence of the size and painful character of the tumour. At present, the tumour measures $6\frac{1}{2}$ inches in its long, by $3\frac{1}{2}$ in the short diameter, and is nearly a perfect ovoid. The lower extremity seems pretty firmly fixed at the internal condyle of the humerus, and the long axis extends in the direction of the axilla. The whole tumour is solid, elastic, smooth, movable, especially laterally, and evidently without adhesion to integument or bone. The skin is of natural colour and sensibility, while pretty firm manipulation of the tumour is productive of great pain, chiefly in the parts below supplied by the ulnar nerve. The tumour is regarded as encysted fibro-plastic, requiring removal to escape the great pain and loss of use of the arm, caused by its rapidly increasing size and by the supposed *mechanical compression of the ulnar nerve.*

In this opinion Drs. Marshall, Wellman, and Cummings, of Fitchburg, concurred, and on the 16th of June, 1856, rendered valuable assistance in the operation for its removal. By a longitudinal incision the integuments were easily detached from the investing capsule of the tumour, and when carefully attempting to enucleate it, without injury to the ulnar nerve

(which was expected to be found between the tumour and bone), it was discovered to be a tumour of *that nerve*. The ulnar nerve, in fact, appeared to be the axis of the spheroid, and at either pole was eularged, the lower to three, and the upper to five lines iu diameter; the capsule of the tumour was evidently composed of the neurilemma. The trunk of the nerve, from above, was spread out into a vast number of flattened fibres, partly dipping into the tumour, but chiefly running in curved lines, on its convex surface, like the network on a balloon, and subdividing till scarcely visible to the naked eye; and, at the lower part of the tumour, converging in more and more distinct lines to form the nervous trunk, where it passes over the groove of the internal condyle of the humerus. To save the nerve was found impossible, and it was accordingly divided, first above and afterwards below, and, there being no adhesions to the bone, the tumour was readily separated from its bed. Some of the muscles were displaced and atrophied, by mechanical pressure, but not involved in the disease. Only one artery required ligature; the tumour was not attached to the skin or bone. With the exception of a secondary hemorrhage, on the eleventh day, which was readily controlled by compression, the wound healed kindly, partly by adhesions, and partly by granulations, and with paralysis of the ulnar portion of the forearm, he returned to his home, in five weeks, calling himself "well."

It should be here stated that the tumours in the skin were observed at the time of the removal of the large tumour of the ulnar nerve. These cutaneous tumours were firmer and evidently more prominent than when he subsequently entered the hospital, in 1858, as described by the record.

The tumor weighed two pounds, avoirdupois; oval, smooth, solid, very elastic, and covered with an investing capsule, which could not be easily detached; the cut surfaces immediately presented a slightly convex appearance, and on firm compression several smaller convex disks appeared on the general convexity of the cut surface. The colour was generally of a grayish, glistening white, in spots inclining to yellow, or a bluish, translucent white; appears succulent, and is partially friable in spots, yet is pretty firmly coherent by apparently fibrous or condensed areolar tissue. Dr. Wellman and myself examined the tumour microscopically, and failed to find evidence of its encephaloid character, but did find evideuce of its fibroplastic structure. Sections of the tumour were sent immediately to different microscopists. A portion sent to my brother, Dr. Homer O. Hitchcock, House-Surgeon at Bellevue Hospital, was examined by himself, by Drs. Alonzo Clark and J. C. Dalton, Jr., of New York, who concurred in opinion that it was of the fibro-plastic character, and without cancer-cells.

The following extracts of letters, from their distinguished authors, express their several views of the specimens from this tumour which were sent for their examination.

Of a specimen sent in alcohol to Prof. E. R. Peaslee, then at Hanover, N. H., he writes as follows:—

JULY 9, 1856.

I would not like to pronounce unqualifiedly on the character of a tumour in the circumstances, since the action of the alcohol must somewhat change the minute structure. In the first place, I do not find any reason for believing the growth *encephaloid;* second, it lies in my own estimation between neuroma and a modification of the ordinary *fibrous tumour;* and as I fail to find anything characteristic of the former, I should be obliged, from the present specimen, and in its present condition, to think it the latter, of which it seems to me to present the characters. I should, however, hesitate to give a decided opinion in the circumstances.

Of a specimen sent to Dr. J. B. S. Jackson, of Boston, the day after its removal, he writes as follows:—

BOSTON, June 20th, 1856.

Dr. HITCHCOCK—*Dear Sir:* I received your specimen in good condition, and it has been examined by several others as well as by myself. No one of us, I believe, agrees in calling it *neuroma;* my own opinion was decidedly against that view of the case, and having had an opportunity to examine Dr. Smith's specimens and his plates side by side when I was in Dublin, I came to the conclusion that a very considerable variety of structures were described under that name; and that it might be very easy to confound neuromatous with tumours that simply involved or pressed upon the nerves. The light-coloured portion I thought resembled what has been described as the fibro-plastic, and the yellowish opaque I supposed to be the result of a secondary action, probably inflammatory. The appearances of "encephaloid" vary much in different cases and in different parts of the same mass.

The light-coloured portion of this tumour I should say varied very much in its gross appearance from an average encephaloid; far more I think than Dr. Bigelow would make it judging from his note, which, as you will see by the date, I have just received. I expected, therefore, that it would be found microscopically to possess the usual fibro-plastic appearances, and I am surprised to find that there is so much of the encephaloid character. In regard to the general character of the disease practically I considered it when I first saw the specimen, and after reading your history of the case, *to be cancer*, though not the most common form. I had little or no doubt that it would return and sooner or later destroy the patient, and I presume that my friends here agree with that first impression. The pure fibro-plastic tumour often enough returns and is fatal; but this case seems to have been a step towards encephaloid.

Dr. Jackson placed the specimen in the hands of Dr. H. J. Bigelow, of Boston, who expressed the following opinion.

JUNE 20, 1856.

Dear Sir: The tumour of which you sent me a portion of uniform structure, flat on section, tender and of a bluish translucent tint, although

it resembles encephaloid in these respects, does not present the most frequent microscopic appearance of that disease; the cells having a tendency to excessive elongation, some consisting of an attenuated long nucleus, with at each end a long fibre; others elongated narrow bodies with parallel sides and blunt ends, others again merely ovoid and elongated nuclei; but nuclei and nucleoli all small. Yet these appearances correspond sufficiently with some other cases of undoubted cancer, and also with one of Paget's figures. I should consider also that the universal occurrence of these masses in the same patient was conclusive as respects cancer, if indeed they are not some also melanotic.

Dr. C. Ellis, of Boston, writes as follows to Dr. Jackson: "The tumour from the arm was examined by Dr. Shaw and myself. We both found round or oval granular nuclei; the nucleoli in which were comparatively small; also cells more or less elongated containing the same nuclei above described. Dr. Shaw was inclined to call the disease fibro-plastic. I do not deny that it might be so-called, but would rather describe the appearance of the cells than give them a name."

The following is the record of the case at the Massachusetts General Hospital.

1858. Samuel B. Clark, aged 47; single; labourer; Bolton. Encephaloid tumour of arm. One year.

January 6. Family scrofulous, himself generally healthy, twenty-four years ago discovered a small movable bunch on right arm just above bend of elbow. This increased very slowly, at times seeming to remain stationary and not interfering with the motions of the arm. At the end of twenty years it began to rapidly increase, extending over to back of arm, retaining, however, its mobility, and not causing him any pain except after severe exertion; when the pain was of a dull aching character; never lancinating. It was removed a year ago last June by a surgeon of Fitchburg. It weighed two pounds; the wounds healed kindly. Last February the disease began to return, commencing, as previously, in the form of a small lump about two inches above internal condyle of humerus; growing rapidly, extending in either direction so as to completely encircle the arm, and becoming the seat of severe lancinating pains; especially distressing at night. The growth is developed principally to the inside of arm, where a large spherical mass, hard and immovable, juts out; is continued round to outside of arm, where, however, the convexity is less marked, and extends upwards; all the while diminishing in circumference till the hardness disappears about five inches above elbow. In the axilla a firm hard cord can be traced downwards into the mass where it disappears. Pressure along this is productive of great pain. The circumference of the arm over the greatest convexity of the tumour is twenty inches. The integument covering the whole mass is reddened and adherent, large veins anastomose over its surface, one of which was ruptured about a week ago and now bleeds freely

whenever compression is removed. Right forearm is cold; the muscles do not appear to be wasted. Hand droops; fingers are permanently contracted. Has been unable to use his hand for a month. Pulsation in radical artery feeble. A curious eruption of the skin also strikes the eye; most pronounced upon the back; sparse upon the chest and belly; looking like small pediculated tumours of the skin; wrinkled, flaccid and flabby, very soft, receding on the slightest pressure through the skin into the cellular tissue. These are the largest, a dozen or more in number of the size of a large green pea, but the earliest stage of this eruption is seen to be a minute papule sparsely disseminated over the trunk and on the forehead, and it is to be seen in intermediate stages. A few of the largest of these little tumours existed upon the amputated arm, and proved, on dissection, to lie in the cellular tissue, of a soft white material though not easily torn, and to consist under the microscope of elongated nuclei, and cells identical with those found in the tumour.

Amputation at the shoulder-joint was performed by Dr. Bigelow with an upper flap by transfixion in the usual manner, January 9, 1858.

The tumour, on dissection, proved to lie beneath the muscles, being about eight inches in diameter, ovoid. The musculo-spiral nerve lay in a groove upon its surface enlarged but not adherent. The radial nerve was also detached by dissection from the surface of the tumour; but the ulnar nerve entered the tumour at its upper extremity and was immediately lost in its substance. Before disappearing it bulged like a sparrow's egg, this knob being encysted beneath the surface of the tumour, but readily peeling from it. Its point of emergence was entirely obscured by the adherent cicatricial and diseased tissue at the lower extremity of the tumour at the point of the old operation. The tumour was not adherent to the bone. Upon section it presented, on the whole, an encephaloid character, the centre seemingly more succulent, vascular, transclucent, and mottled; the periphery more opaque, white, and lobulated with lymph, friable to the thumb without difficulty; the centre tougher. Microscopically the tumour consisted mostly of elongated nuclei, containing one or more nucleoli about one-fourth the width of a blood-corpuscle and from two to four times as long, often bifid at the extremities, the nucleoli rather small than large, some tendency to fibroid tissue.

Omitting the daily record till April 22d, 1858, we find "Less pain than at time of last record, shoulder still quite sensitive, discharged well."

From Dr. W. H. Bigelow, of Bolton, I received the following terminal facts in Samuel B. Clark's case. He remained in the hospital till April 22, 1858, when he returned to Bolton, with the stump not healed but hard at one point. This rapidly increased in size and hardness and finally became raw and bleeding. He wasted in flesh and died August 17, 1858. (A post-mortem examination was not made.)

Several important inquiries naturally arise from a review of these cases.

1st. Was Samuel B. Clark's tumour of the ulnar nerve a true neuroma?

2d. Is neuroma naturally *benign*, and does it sometimes degenerate into malignant disease?

3d. The small cutaneous tumours having been found by several observers clinically and microscopically identical with medullary cancer, how is it that such a crop of that disease has grown so inoffensively 30, 40, and 50 years on these three persons?

4th. Is it not possible or even probable that these tumours originate in minute cutaneous nerves, by reason of which their malignant tendency is modified or controlled, perhaps at the expense of intellect or some other manifestation of nerve power?

These inquiries open a field for research where the annals of clinical surgery and pathology afford but little information. With the hope of pursuing this inquiry farther, I invoke the aid of the readers and contributors of this Journal to elucidate this rare and obscure disease.

ART. III.—*Inversion of the Hairs of the Labia Pudenda.* By C. D. MEIGS, M.D., Emeritus Prof. of Midwifery in Jefferson Medical College. In a letter to the Editor.

MY DEAR SIR: Since I saw you yesterday I have found, at page 95 of my "Letters to the Class," 4th edition, the relation of a case of pruritus vulvæ closely resembling that of our patient, Mrs. ———, and which was the subject of our conference.

The late Dr. ——— had for some time had charge of the young lady, aged about 20 years, and suffering greatly from continual pruritus and heat of the vulva. Finding himself baffled in his trials of cures, he at length asked leave to make a physical diagnosis; and you may infer as to the severity of the young lady's distress that could induce her to yield assent to so trying a demand.

The inspection of the parts did not, however, provide for the Doctor means of cure more efficient than the preceding ones; so that, the various washes and even the application of nitrate of silver having failed, he gave it over to me.

I was much surprised, on inquiry, to find the margins of each of the labia studded with long, straight, and stiff hairs, just like eyelashes, all of them directed inwards, and so, constantly teasing, irritating and vexing the mucous body of the interior, and producing a redness or florid tint of the membrane, with heat and the intolerable itching of which she so long had complained. I was struck with the analogy of the situation to that of the conjunctiva in those cases of conjunctivitis which you have often found to